

CATALOGUE No.

71-507

OCCASIONAL




Government
Publications

special labour force studies

No 3



the job content of the canadian economy / 1941 - 61



Digitized by the Internet Archive
in 2024 with funding from
University of Toronto

<https://archive.org/details/31761016678005>

DOMINION BUREAU OF STATISTICS
Census and Labour Divisions

SPECIAL LABOUR FORCE STUDIES

No. 3

The Job Content of the Canadian Economy, 1941, 1951 and 1961

by

J. G. Scoville
Harvard University

Published by Authority of
The Minister of Trade and Commerce

April 1967
8005-507

Price: 75 cents

SPECIAL LABOUR FORCE STUDIES
No. 3

The Job Content of the Canadian Economy, 1941, 1951 and 1961

by

J. G. Scoville
McGill University

Published in January 1962
The Board of Trade and Commerce

TABLE OF CONTENTS

The Census and the Working Population

1. Statistical Information on the Census

2. The Census: The Process and the Results

3. Methodology of the Census

4. Methodology of the Census: The Results

5. Statistical Information on the Census

The Census and the Working Population, 1941-1961

1. Statistical Information on the Census

2. The Census: The Process and the Results

3. Methodology of the Census

4. Methodology of the Census: The Results

FOREWORD

This is the third in a series of research studies concerned with the analysis of selected economic, social or demographic aspects of the working population in Canada. The statistical information on which this study was based is derived from the decennial Censuses of Canada for 1941, 1951 and 1961. The methodology followed was originally developed by Dr. Scoville in his doctoral dissertation "The Job Content of the U.S. Economy, 1940-1970", Harvard University, 1964.

Professor Scoville was assisted in the preparation of the statistical material by Mr. John Moran and Mrs. Sylvia Wargon; both members of the Census Division. The study was prepared under the joint direction of Dr. Karol J. Krotki, Assistant Director (Research), Census Division and Dr. Sylvia Ostry, Director, Special Manpower Studies and Consultation.

The responsibility for the analysis and interpretation of the data is that of the author and not of the Dominion Bureau of Statistics.

WALTER E. DUFFETT,

Dominion Statistician.

AUTHOR'S FOREWORD

This study was conducted with the assistance and cooperation of several divisions and sections of the Dominion Bureau of Statistics. Special acknowledgements are due to Dr. Sylvia Ostry, whose interest in the problem of job content made these research facilities available, to Miss A.G. Wood for supplying comparability tables for the Canadian and United States Census data for the past twenty years and to Mrs. Sylvia Wargon for preparing the tables in Appendix II. Time limitations have unfortunately prevented as intensive an examination of the problem as the author intended, especially with respect to the characteristics of job families and content levels.

TABLE OF CONTENTS

	Page
The Theory and Measurement of Job Content	7
Historical Concern with Job Content.....	7
Job Content – The Focus and Level of Jobs	8
Methodology I – Job Families	8
Methodology II – Job Content Levels	9
Canadian Occupational Data	9
The Job Content of Canada, 1941 - 1961	10
Behaviour of Job Content Levels	11
Job Content Levels by Sex	12
Job Content Levels by Province	12
Behaviour of Job Families	14
Comparison with the Job Content of the United States	15
Job Content Levels	15
Relative Importance and Growth of Job Families	17
The Source of Content Level Differences, 1960 - 61	18
Summary and Conclusions	19

List of Tables

Table

1. Job Content Levels of Canada, 1941, 1951 and 1961	10
2. Percentage Distribution, Job Content Levels, Canada, 1941, 1951 and 1961	11
3. Rates of Growth and Impact of Reduced Overall Growth, by Job Content Levels, Canada, 1941, 1951 and 1961.....	12
4. Percentage Distribution, Job Content Levels by Sex, Canada, 1941, 1951 and 1961.....	12
5. Percentage Distribution by Job Content Levels, Provinces, 1941, 1951 and 1961	13
6. Variance of the Provinces about their Mean Content Level by Job Content Levels, 1941 and 1961	14
7. Percentage Changes in Labour Force, by Job Family, Canada, 1941-51 and 1951-61	14
8. Growth Rates, by Job Content Levels, Canada and United States, 1940/1-50/1 and 1950/1-60/1	15
9. Percentage Distribution by Job Content Levels, by Sex, Canada and United States, 1940/1 and 1960/1	16
10. Percentage Distribution, by Job Family, Canada, 1961 and United States, 1960	17
11. Percentage Change by Job Family, Canada, 1941-61, United States, 1940-60	17
12. Sources of Difference, United States and Canadian Content Level Distributions, 1960/1.....	18

Appendices

I. Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961	20
II A. Mean Earnings by Sex for the Job Content Matrix, Canada, 1961	27
II B. Median Years of Schooling for the Job Matrix, Canada, 1961	28

Economists have long been concerned with the type and complexity of the work which people do. What **kinds** of work are important, in terms of the functions, equipment, and processes involved? What **levels** of skill, responsibility, and general job complexity characterize this work? A large number of other labour market variables are affected by the answers to these questions—wage, education, and training distributions or requirements, the facility of adjustment to economic and technological changes, and even the age and sex distribution of employment. The principal goal of this paper is to attempt to estimate the kinds of jobs in the Canadian economy, by function and level, and to compare the resulting structure with that of the United States. This first section is concerned with a review of the background, theory, and methodology of the study. Further discussion of these topics can be found in the original study of the United States; the discussion of methodology is particularly truncated in this report.¹

Historical Concern with Job Content

Economic analysts over two centuries have considered the effects of economic processes—capital accumulation, technological change, market shifts—on the types of jobs and their relative importance, as well as the more frequently studied effects on employment and output, wages, prices, and welfare. Starting at the usual milepost, there are scattered references to the content of various jobs in *The Wealth of Nations*. For Adam Smith, the great force for progress was the division of labour, and he asserted that this process led to increased “dexterity”.² But this increased dexterity seems on the whole to reduce the content of manufacturing jobs,³ and Smith is emphatic that the job of country labourers is in no way less complex than those of the “mechanic-trades”.⁴

Ricardo's familiar analysis forecast that a rising proportion of the national income would accrue to rent as a country's population grew. This increase in the “net income” of society will lead to expanded employment of “menial servants”, which will absorb some of the labour displaced by the use of machinery.⁵ Ricardo thus predicted a shift in the types of work performed, from skilled crafts to menial service, and hence a movement from relatively complex and demanding jobs to those of a lower level.

¹ See J.G. Scoville, “The Job Content of the U.S. Economy, 1940-1970”, a report (stemming from a thesis at Harvard University, 1964) prepared for the United States Department of Labor, Office of Manpower, Automation and Training. This report will probably be published in 1967.

² Adam Smith, *The Wealth of Nations*, (New York: Modern Library, 1937), p. 8.

³ *Ibid.*, pp. 734-735. “The man whose life is spent performing a few simple operations . . . generally becomes as stupid and ignorant as it is possible for a human creature to become.”

⁴ *Ibid.*, p. 127. This passage is hard to beat for a balanced assessment of job complexity in terms of skill, responsibility, judgement, materials, and equipment involved.

⁵ David Ricardo, *Principles of Political Economy*, (London: George Bell, 1891), pp. 383-384.

Marx foresaw much the same process. Machines are first used to do the skilled manual work of men, while the men are “demoted to a source of motive power”, only to be subsequently displaced from such tasks also.⁶ He is explicit on the elimination of skills in the process of mechanization:

Along with the tool, the skill of the workman in handling it passes over to the machines . . . Hence, in the place of the hierarchy of specialized workmen that characterises manufacture, there steps, in the automatic factory, a tendency to equalize and reduce to one and the same level every kind of work that has to be done by the minders of the machines.⁷

This reduction in the content of blue-collar jobs is accompanied by the substitution of capital for labour, unskilled labour for skilled, and women and children for men.⁸

Analysis and comment of this type can be found in the writings of many other economists.⁹ Alfred Marshall and J.B. Clark were generally optimistic about the future course of skill levels and working conditions. Francis Walker, Henry George and J.R. Commons felt that on the whole the average job was becoming less demanding in terms of skills and abilities. Nevertheless, economists did not usually dwell on these problems, and we are often confined to *obiter dicta* instead of concrete analysis. A glance at sociological literature, however, reveals that Durkheim, Friedmann and Abruzzi have concentrated explicitly on the changing content of jobs in the processes of mechanization and automation. The latter two have especially stressed the complexity of the changes in job content which can accompany changing technology. Unfortunately, their work has tended to concentrate upon—and be most applicable to—blue-collar jobs, at present a minority of all jobs.

This, then is a brief summary of the history of thinking about the problem of job content. Most writers have felt that machines displace skilled labour; Ricardo and Marx saw a shift from such crafts to menial service. Writers from Marx on have generally set against this trend toward reduction of job content, the growth of very highly skilled work—engineers and superior mechanics for Marx, a similar “New Artisan Group” for Friedmann.¹⁰ None of them, however, made any effort to assess the quantitative importance of the shifts among various types and content levels of jobs. Part of the purpose of the job content framework is to provide a system in which such propositions can be tested.

⁶ Karl Marx, *Capital*, (Chicago: Kerr, 1926), pp. 406-410.

⁷ *Ibid.*, p. 459.

⁸ *Ibid.*, pp. 470-487.

⁹ Discussion and references for other writers will be found in Scoville, *op. cit.*, Chapter I.

¹⁰ Georges Friedmann, *Industrial Society*, (Glencoe: The Free Press, 1955), pp. 197-200.

Job Content — The Focus and Level of Jobs

The job content model identifies two dimensions of the jobs in an economy — the principal focus, function, or equipment involved, and the relative levels of complexity, skill, and responsibility pertaining to jobs. The first dimension, that of job families, aggregates jobs with the same technical focus or "focus of attention" of the workers involved.¹¹ The importance of this technical discussion for job content, training, wage structure and other phenomena is discussed more fully by Dunlop, with appropriate examples.¹² Within focus-oriented families, jobs are differentiated by varying levels of job content — skills, responsibilities, and training required differ, with the result that jobs are arrayed in ladders of complexity, promotion and compensation.

This aggregate model of job content is analogous to the organization of jobs at the operations level. Micro-economic job families and clusters form the underlying fabric of jobs in an economy. They have been analyzed by Dunlop and Livernash with special regard to the effects of these common technological and promotional foci on the structure and determination of wages.¹³ A few examples can be given of such families — the jobs centered about the baking process, in a rolling mill, or along an automobile assembly line. Logically, it would be possible to create aggregate job families and content levels by summing those we discern in plants and other units of operations. As this approach is empirically precluded, aggregate job content data must be obtained by re-allocation of such information as we now have.

The job families and content levels of this model are of interest for reasons other than simple curiosity about what people do. The distribution of jobs by type and level is related to the structure of wages, the kinds and duration of education and training required, worker mobility and other labour market phenomena.

Methodology I — Job Families

As we cannot use the inductive approach of adding up "micro-economic" job families and clusters, we must create aggregate families by reclassification of available data according to ladders of promotion and common technical foci. The reclassification must be performed in the light of relevant questions about the work people do, for example, questions arising from the theory and analysis of technological change. However, some of the matters of most interest today cannot be reflected in a new classification because of fundamental limitations of

the background data. Examples of distinctions which a more successful job family scheme would include are those between production and maintenance work, and between jobs merely adjacent to large systems of machinery (e.g., an assembly line) and jobs directing such systems (as in an automated rolling mill). The families identified in this study represent a balance between the questions we were able to ask and the ability of the data to answer them. The eighteen families used will be briefly described at this point.

1. **Tools — Specialized;**
2. **Tools — Non-specialized;**
3. **Machines and equipment — Specialized; and**
4. **Machines and equipment — Non-specialized.**

The effects on job content of the size and complexity of equipment involved have been noted by Dunlop.¹⁴ Tools encompass those instruments normally included under that title plus the smaller machines for which one man is responsible; machines usually involve longer processes and numerous inter-related jobs. The tools and machines families were divided into specialized and non-specialized jobs — the first group of jobs are narrowly specialized by industry or function, while non-specialized jobs have a relatively wide range of applicability.

5. **Inspection.** — This family contains those jobs whose primary focus is the inspection or superintendence of work processes or product quality.
6. **Vehicle operation.** — Vehicles are a special type of machine, in which the content, tasks and responsibilities of the job are significantly affected by the moveability of the workplace.
7. **Farm.** — These jobs are easily recognized as a specific family with regard to job content and promotion patterns.
8. **Sales A (Considerable knowledge of product required) and**
9. **Sales B (Little knowledge of product required).** — Both families are centered about a focus on selling, but the first class of jobs requires a more detailed knowledge of product characteristics, while the second family is much more focused on the act of selling itself.
10. **Clerical.** — This family includes those jobs centered on the creation and collection of records and correspondence.
11. **Personal Service.** — These jobs involve the provision of personal services to customers, either individually or in groups.
12. **Entertainment.** — Jobs in this family are focused on the production of entertaining items or events, including cultural and artistic endeavours.
13. **Protection.** — Specific service jobs focused on the protection of persons or property are included in this family.

¹¹ John T. Dunlop, *Industrial Relations Systems*, (New York: Holt, Rinehart, and Winston, 1958), pp. 52-54.

¹² *Ibid.*, pp. 47 ff.

¹³ J.T. Dunlop, "The Task of Contemporary Wage Theory," J.T. Dunlop, editor, *The Theory of Wage Determination*, (London: Macmillan, 1957); E.R. Livernash, "The Internal Wage Structure," in G.W. Taylor and F.C. Pierson, editors, *New Concepts in Wage Determination*, (N.Y.: McGraw-Hill, 1957).

¹⁴ J.T. Dunlop, *Industrial Relations Systems*, p. 53.

14. **Education.**—This is another family centered about a specific type of service—the provision of education and training.
15. **Health.**—This job family is focused on the care and cure of patients, and includes related “para-medical” jobs.
16. **Welfare.**—Both social and religious welfare services are included in this group—the range of tasks is broadly similar.
17. **Administration and organization.**—The jobs in this family are centered upon the direction and management of economic and social units, such as firms, labour unions, and governments.
18. **Research and design.**—These jobs are concerned primarily with research (basic and applied) and the design of products, equipment, and methods.

Methodology II—Job Content Levels

Ranking of occupations by job content was performed by a process analogous to customary job evaluation procedures. A set of data on the training, skills, and abilities required by four thousand jobs was first adapted to the United States Census framework. These data were then regressed against 1960 full-time earnings, to estimate the “shadow prices” placed on the various characteristics by the market.¹⁵

¹⁵ The regression equation, with all coefficients in United States dollars, was:

“Value of the job”
(1960 full-time wage
and salary income)

$$\begin{aligned}
 = & 5568.89 \\
 & +138.37 \text{ (Required level of general} \\
 & \text{educational development,} \\
 & \text{in years)*} \\
 & +183.62 \text{ (Required level of specific} \\
 & \text{vocational preparation, in} \\
 & \text{years)*} \\
 & -284.30 \text{ (Index of general intelli-} \\
 & \text{gence required)} \\
 & -126.72 \text{ (Index of numerical ability} \\
 & \text{required)} \\
 & -396.59 \text{ (Index of spatial perception} \\
 & \text{required)*} \\
 & + 41.47 \text{ (Index of form perception} \\
 & \text{required)} \\
 & +152.94 \text{ (Index of motor co-ordina-} \\
 & \text{tion required)} \\
 & -724.42 \text{ (Index of finger dexterity} \\
 & \text{required)*} \\
 & + 70.20 \text{ (Index of manual dexterity} \\
 & \text{required)} \\
 & +128.13 \text{ (Index of Eye-Hand-Foot} \\
 & \text{co-ordination required)} \\
 & +320.98 \text{ (Index of Color discrimi-} \\
 & \text{nation Ability)*} \\
 & + e.
 \end{aligned}$$

The indices run from 1 (top) to 5 (bottom), hence minus signs on coefficients indicate positive relationships, and vice versa. The coefficients of those variables marked with an asterisk are significantly different from zero at the 5% level. Two other indices (verbal ability required and clerical perception required) could not be used to collinearity with the other variables, particularly general intelligence. The raw data are from the *Estimates of Worker Traits Requirements for 4000 Jobs*, United States Bureau of Employment Security, 1956. The translation from the indices in that document to years required of general and specific preparation is found in R.S. Eckaus, “Economic Criteria for Education and Training,” *Review of Economics and Statistics*, May 1964, p. 185n.

These variables explained about 45 percent of the variance in earnings, and about 61 percent when combined with rough indices of the importance of varying age, racial, sex and regional characteristics. The regression estimates of the “value” of each occupation based on training and aptitude requirements were used to place occupations into five job content levels, with only minor readjustments when the estimates were clearly contrary to fact. Occupations valued at more than \$6,700 were placed in the top group; those below \$3,900, in the bottom group. These figures were three standard deviations above and below the mean, respectively. The range between \$3,900 and \$6,700 was divided into three levels: \$3,900-4,800, \$4,800-5,800, and \$5,800-6,700.

In the original study, the detailed occupations of the United States Census were allocated to the cells of the job content matrix by the procedures outlined above. The method employed in this study was to establish comparable groupings of Canadian Census data. Among the assumptions implicit in this approach, two important ones come immediately to mind. First, we assume that the content of a specific job varies little between the two countries—that a physician, carpenter, or truck driver does pretty much the same thing in Canada and the United States. This assumption does not seem unreasonable, but no easy method of testing it is apparent. A second assumption lies in the original market-valuation process used to establish job content levels. Occupations were ranked by the values placed on their skills and training requirements *by the labour markets of the United States*. It is not likely that precisely the same values would be found in the Canadian economy, but the use of a relatively small number of job content strata should render this objection to our procedure fairly harmless. Nevertheless, the creation of internationally comparable statistics on job content does rest on the assumption that relative valuations of the various aspects of job content are more or less the same.

Canadian Occupational Data

The occupational data of the Canadian Census have been broadly similar to those collected in the United States. Canadian data have lacked the specific purpose of measuring social-economic groups which lies behind United States data and have retained their general industrial nature more persistently. Nevertheless, the amount of information on types and levels of jobs is roughly the same in both Censuses, and most titles are identical or involve only small differences of language. Comparability tables prepared by the DBS Census Division were used to convert the Canadian data to the basis used in the earlier study. Although some of the titles are not directly comparable, there often exists comparability between groups of titles. As the nature of the job content model is to assign jobs of similar content to the same cell of the matrix, such groupings can often be allocated directly without need for comparability of specific titles. In those cases in which it was necessary to “break” a Canadian title (for example, to follow the United States distinction between craftsmen and apprentices in building, printing

and other trades), its employment was pro-rated according to the United States employment data. Questionable divisions of this sort should involve only a small percentage of the labour force; even an average difference of 20 percentage points between United States and Canadian distributions in all the pro-rated occupations would have resulted in mis-allocation of about 3 per cent of the Canadian labour force in 1951. It seems likely that the differences would be much smaller—if 5 per cent of United States compositors are apprentices, the Canadian figure should not be far off. The details of the procedures employed and the resulting classification can be obtained from the Census Division, Dominion Bureau of Statistics.¹⁶

Three final points must be made about the Canadian occupational data and their comparability with United States' statistics. In the first place,

¹⁶ The original classifications for United States data are found in Scoville, *op. cit.*, Appendix I.

occupational data for Newfoundland prior to entering the Confederation have not been adjusted to the Canadian framework, and probably could not be so adjusted. Newfoundland's relative size implies that that no major distortions should arise from this omission. Secondly, the published Canadian Census data used in this paper are labour force measurements, while those utilized in the earlier study of the United States pertained to employment. Without reworking the basic data, it is impossible to assess the magnitude of any biases in comparison of such data. Labour force data should exert a downward bias on measured job content levels if unemployment rates vary inversely with level of job content. Finally the Canadian Censuses are taken in the second year of the decade (1941, 1951, etc.) while those in the United States are taken in the initial year (1940, 1950, etc.). It is unlikely that small difference in reference periods would significantly affect the broad structural phenomena which are the subject of this study.

THE JOB CONTENT OF CANADA, 1941, 1951 AND 1961

In the twenty year period since 1941, the structure of Canada's job content has undergone considerable change. Job families and content levels have experienced widely differing patterns of growth, with the result that the types and level of jobs in the Canadian economy of 1961 contrast sharply with those of 1941.

The Canadian matrix of job content of the three census years is shown in Table 1. This section is devoted to a discussion of the major changes in the job content of the Canadian economy which are revealed by the information in this table and the supplementary data included in the Appendix.

TABLE 1. Job Content Levels of Canada, 1941,¹ 1951 and 1961

Labour force, 14 years of age and over, in thousands

Job content level	Job family								
	Tools - Specialized	Tools - Non- specialized	Machines and equipment - specialized	Machines and equipment - Non- specialized	Inspection	Vehicle Operation	Farm	Sales	
								A (Consid- erable knowledge)	B (Little knowledge)
Totals:									
1941	246.0	655.5	147.5	325.2	66.5	162.0	1,083.7	61.1	180.8
1951	312.3	918.2	163.2	441.1	128.8	266.4	812.6	100.5	242.1
1961	323.3	1,045.2	170.3	477.7	194.5	346.6	619.9	129.3	330.5
I - 1941	1.0	0.5	—	—	—	—	—	4.7	—
1951	4.4	0.9	—	—	—	—	—	12.2	—
1961	8.4	1.0	—	—	—	—	—	16.1	—
II - 1941	25.2	142.2	8.5	—	34.7	17.8	1.8	29.8	—
1951	24.9	123.7	13.4	—	87.6	24.7	2.7	37.1	—
1961	29.6	150.8	17.2	—	112.6	24.2	1.6	55.7	—
III - 1941	74.1	198.7	28.5	30.7	26.5	105.8	1.2	26.6	8.4
1951	86.7	368.3	33.6	40.7	33.4	209.0	1.3	51.2	3.4
1961	103.9	443.2	55.3	46.7	75.2	190.0	1.7	57.5	5.0
IV - 1941	50.3	24.0	110.5	13.6	3.8	29.9	644.8	—	168.5
1951	62.1	44.5	116.2	22.3	6.3	10.4	546.3	—	233.5
1961	60.4	82.7	97.7	14.7	6.5	5.0	394.2	—	318.1
V - 1941	95.4	290.1	—	280.9	1.5	8.5	436.0	—	3.9
1951	134.3	380.8	—	378.1	1.6	22.2	262.4	—	5.2
1961	120.9	367.5	—	416.3	0.2	27.4	222.3	—	7.4

¹ Excluding armed services.

TABLE 1. Job Content Levels of Canada, 1941,¹ 1951 and 1961 - Concluded

Job content level	Job family									Total Labour Force
	Clerical	Personal service	Entertainment	Protection	Education	Health	Welfare	Administration and organization	Research and design	
Totals:										
1941	370.4	353.3	14.7	43.9	92.6	74.5	28.3	243.1	30.9	4,180.1
1951	625.0	308.7	18.8	57.0	113.3	125.1	34.5	428.2	54.8	5,150.6
1961	869.6	437.9	29.6	82.5	192.7	218.4	44.6	567.6	100.4	6,180.9
I - 1941	35.9	—	11.2	—	92.6	16.7	15.9	14.3	26.4	219.2
1951	36.2	—	12.9	—	113.3	21.9	20.1	19.0	44.0	284.9
1961	34.1	—	18.7	—	192.7	30.6	29.8	28.9	78.7	439.0
II - 1941	4.3	—	0.8	—	—	5.5	12.4	60.0	4.5	347.5
1951	3.5	—	1.1	—	—	16.3	14.4	156.1	10.8	516.3
1961	6.0	—	2.8	—	—	26.5	14.8	245.4	20.6	707.8
III - 1941	298.4	102.6	1.1	22.2	—	29.2	—	161.7	—	1,115.7
1951	541.5	64.3	1.3	30.0	—	40.1	—	247.6	—	1,752.4
1961	757.3	108.3	2.2	45.8	—	68.3	—	284.0	—	2,344.4
IV - 1941	19.9	27.7	0.5	20.9	—	23.1	—	1.9	—	1,139.4
1951	32.3	43.1	0.5	26.3	—	46.9	—	2.3	—	1,193.0
1961	65.2	61.4	0.7	35.7	—	93.1	—	3.1	—	1,238.5
V - 1941	11.9	223.0	1.1	0.8	—	—	—	5.2	—	1,358.3
1951	11.5	201.3	3.1	0.7	—	—	—	3.2	—	1,404.4
1961	7.1	268.2	5.1	1.1	—	—	—	6.3	—	1,449.8

¹ Excluding armed services.

Behaviour of Job Content Levels

The percentages of the Canadian labour force occupied in each of the five job content levels in 1941, 1951 and 1961 are shown in Table 2. The share of the three top content levels have risen substantially since 1941, with the result that the

distribution, formerly showing an inverse relationship between content level and percentage share, now exhibits a marked peak at level III. The reduced importance of levels IV and V has contributed most to the increase in level III, with smaller gains in levels I and II.

TABLE 2. Percentage Distribution, Job Content Levels, Canada, 1941, 1951 and 1961

Level	1941	1951	1961
I	5.2	5.5	7.1
II	8.3	10.0	11.5
III	26.7	34.0	37.9
IV	27.2	23.2	20.0
V	32.5	27.3	23.5

The overall rise of nationwide job content level is composed of different growth rates characterizing the two decades. Canadian Gross National Product (in 1949 dollars) increased by 48.5 per cent in the first decade, but by only 42.7 per cent in the second. This 12.0 per cent decline in the rate of growth of output was accompanied by a 13.8 per cent decline in employment growth. The effects of this reduced buoyancy of aggregate demand on the five job content levels can be seen in Table 3. Rates of growth declined at all levels but the highest, and the percentage decline in the rate of growth was centered

on the middle levels of job content. Growth of highest content jobs accelerated in spite of declining Gross National Product growth, as also occurred in the United States from 1950 to 1960. The apparent relative strength of level V growth is misleading. The tendency for lowest level personal service jobs to behave counter-cyclically (noted in the earlier study of the United States) accounts for the small impact on this group.¹⁷

¹⁷ Cf. Scoville, *op. cit.*, p. 103.

TABLE 3. Rates of Growth and Impact of Reduced Overall Growth, by Job Content Levels, Canada, 1941 - 51 and 1951 - 61

Level	Percentage change in labour force		Impact (2)-(1) (1)
	1941 - 51	1951 - 61	
	(1)	(2)	%
I	30.0	54.1	+ 80.3
II	48.6	37.1	- 23.7
III	57.0	33.8	- 40.7
IV	4.7	3.8	- 19.1
V	3.4	3.2	- 5.9
Totals	23.2	20.0	- 13.8

Job Content Levels by Sex

The distribution of the labour force among job content levels differs considerably by sex, as shown in Table 4. Women are more heavily concentrated in levels I, III and V, and extremely weak in level II. Their strength in level I stems from the dominance of the educational job family, and the relatively large number of women at levels III and V derives

from their preponderant share of level III clerical and health work and level V personal services. Although both male and female content level distributions were changed over the two decades, the impact was greatest on the male distribution. Among women, labour force share in the top two levels rose from just over 12 to just under 13 per cent, while the male percentage jumped from 14 to 21 per cent.

TABLE 4. Percentage Distribution, Job Content Levels by Sex, Canada, 1941, 1951 and 1961

Job content level and sex	1941	1951	1961
Male			
I	4.2	4.7	6.3
II	9.7	11.8	14.4
III	24.7	32.1	36.8
IV	29.9	24.9	20.4
V	31.5	26.5	22.0
Female			
I	9.6	8.3	9.3
II	2.6	3.8	3.6
III	34.9	40.8	40.8
IV	16.4	17.2	19.1
V	36.5	29.9	27.2

Job Content Levels by Province

Given the substantial differences in the industries (and hence job families) which dominate each province, the data of Table 5 reveal few surprises. These data show that the distribution of the labour force by the five content levels varied considerably, with the regions ranked from high to low in the following approximate order in 1961: Ontario and British Columbia, Quebec, Alberta, Nova Scotia, the

Territories, Manitoba, New Brunswick, Newfoundland, Saskatchewan with Prince Edward Island at the bottom. This ranking is based upon an estimate of the mean content level of the various areas derived from the distributions by giving a weight of 5 to level I, 1 to level V, and so on. As the differences between the mean values are often very small, and the difference from top to bottom is less than one third of a content level, it would be improper to lay much stress on the list given.

TABLE 5. Percentage Distribution by Job Content Levels, Provinces, 1941, 1951 and 1961

Province and year	Level				
	I	II	III	IV	V
Newfoundland:					
1941	—	—	—	—	—
1951	4.3	7.0	27.0	31.0	30.7
1961	6.3	9.0	35.8	21.7	26.4
Prince Edward Island:					
1941	4.3	3.2	14.3	44.8	33.4
1951	4.4	4.6	23.3	40.9	26.8
1961	5.6	5.9	28.5	35.1	24.9
Nova Scotia:					
1941	4.2	6.8	25.5	33.1	30.4
1951	5.1	8.2	32.0	28.3	26.1
1961	6.9	10.3	37.0	22.4	23.7
New Brunswick:					
1941	4.2	5.7	22.4	28.7	39.0
1951	4.9	7.6	30.2	23.9	33.4
1961	7.1	9.6	36.4	18.9	28.2
Quebec:					
1941	6.1	8.1	26.8	22.4	36.6
1951	6.0	9.6	34.0	19.1	31.4
1961	7.6	11.2	38.4	16.8	26.2
Ontario:					
1941	5.2	10.3	30.8	23.1	30.6
1951	5.6	12.1	37.3	19.0	26.0
1961	7.1	13.0	40.0	17.6	22.2
Manitoba:					
1941	4.8	7.4	25.1	30.6	32.1
1951	5.0	8.4	33.0	28.3	25.2
1961	6.3	9.9	36.6	25.0	22.4
Saskatchewan:					
1941	4.6	4.2	15.8	45.0	30.4
1951	5.1	5.6	22.1	44.5	22.5
1961	6.1	7.2	28.0	37.5	21.4
Alberta:					
1941	4.7	5.7	19.4	41.3	28.9
1951	5.2	7.8	29.2	35.1	22.4
1961	7.1	9.9	35.3	26.4	21.4
British Columbia:					
1941	5.1	9.5	30.4	25.3	29.7
1951	5.6	11.2	37.4	20.5	25.2
1961	7.2	12.5	40.2	18.3	22.1
Yukon and Northwest Territories:					
1961	7.3	12.0	35.4	18.8	26.5

One proposition can be quite safely established about the interprovincial content level distribution, even if we cannot construct a wholly reliable ranking: the provincial distributions clearly exhibit a trend toward homogeneity during the period from 1941 to 1961. Table 6 shows the variances of the provinces about the unweighted means by content levels for the two end-points of the period. On job content levels II through V, the variances have declined; often quite substantially; the inter-province

variance on level I rose slightly. Since a variance of zero in all cases would represent perfect homogeneity, the direction of the twenty year trend is evident. As the bottom line of Table 6 shows, exclusion of Newfoundland from the 1961 Canadian figures does not alter this conclusion. It should be noted that a similar homogenization of inter-regional job content level distribution occurred in the United States from 1940 to 1960.

TABLE 6. Variance of the Provinces about their Mean Content Level by Job Content Levels, 1941 and 1961

Year	Level				
	I	II	III	IV	V
1941 .....	.329	4.859	31.132	71.760	10.340
1961 .....	.351	4.543	16.026	49.210	5.246
1961 Ex. Newfoundland .....	.342	4.237	14.572	45.060	5.286

Behaviour of Job Families

As can be seen from Table 7, the growth patterns of the 18 job families were quite varied. Among the "goods producing" families, the four tools and machines families grew fairly rapidly from 1941 to 1951 and very slowly in the following decade. In both decades, the non-specialized jobs increased more swiftly than those which are applicable to a narrow range of tasks or industries. The other two families which are focused primarily on processes of goods production are inspection and farming. The first experienced strong growth in both decades, while farming was the only family to decline over the period, losing roughly one quarter of its jobs each decade.

It is often said that the modern American or Canadian economy is no longer goods-oriented, but service-oriented. While this may be true, interest

attaches to the different types of services, and varying growth rates for them are evident from Table 7. Entertainment, protection, and education grew in both decades, but much more rapidly in the period from 1951 to 1961. Health and welfare services grew at different rates, but were similar in that their growth rates increased only slightly in the second decade. The behaviour of the personal services family is most interesting, since many of the jobs in this family (especially on level V) are the sort which men (or their wives) take when they cannot find a better job. Thus, during the 'forties, when the growth rate of employment was higher and the rate of unemployment averaged 2.0 per cent compared with 4.3 per cent in the subsequent decade, employment in personal services declined by one eighth. From 1951 to 1961, however, aggregate demand lost some of its buoyancy, and these same jobs increased by more than two fifths.

TABLE 7. Percentage Changes in Labour Force, by Job Family, Canada, 1941-51 and 1951-61

Job family	1941-51	1951-61
Tools—Specialized	27.0	3.5
Tools—Non-specialized	40.1	13.8
Machines and equipment—Specialized	10.6	4.4
Machines and equipment—Non-specialized	35.6	8.3
Inspection	93.7	51.0
Vehicle operation	64.4	30.1
Farm	- 25.0	- 23.7
Sales A (Considerable knowledge)	64.5	28.6
Sales B (Little knowledge)	33.9	36.5
Clerical	68.7	39.1
Personal service	- 12.6	41.8
Entertainment	27.9	57.4
Protection	29.8	44.7
Education	22.4	70.1
Health	67.9	74.6
Welfare	21.9	29.3
Administration and organization	76.1	32.6
Research and design	77.3	83.2
Totals	23.2	20.0

The remaining six families all grew more rapidly than the labour force as a whole but only research and design and sales B jobs had increased growth rates in the second decade. Sales jobs which require considerable knowledge of the product and its characteristics grew in the 'forties more rapidly than those whose principal focus is upon the act of selling *per se*, but more slowly for 1951 and 1961. The increased growth of more strictly "selling-oriented" jobs may reflect the decline of aggregate growth rates in the same way that the behaviour of personal service jobs does. The growth rates of vehicle operation and clerical jobs were roughly halved in the 'fifties, and both families grew more readily at levels III and below than did their higher content level jobs. The reduced growth of administration and organization jobs was accompanied by a shift away from level III—largely self-employed managers—to level II personnel, who are mostly salaried officials of firms and governments.

The tables in Appendix II present additional information about the 1961 job content matrix, for males and females separately, showing mean earn-

ings and median years of schooling for each of the ninety cells. The data for both males and females in Appendix IIA, reveals the expected positive correlation between levels of job content and mean earnings. Also apparent are considerable earnings differentials between job families as well as within them. An even closer correspondence between schooling levels and job content levels appears in Appendix IIB.

Rather wide sex differentials in earnings can also be observed, independent of job family and content level factors. The female earnings figures generally parallel those of males but at a much lower level. It is interesting to note from Appendix IIB that this earnings gap does **not** stem from wide differences in schooling. The male-female educational difference is comparatively narrow, and sometimes even the reverse of the earnings gap. Thus, for example, at all content levels of the family of clerical jobs, median female schooling was at least as great as male, but nowhere do mean female earnings exceed two thirds of the male earnings.

COMPARISON WITH THE JOB CONTENT OF THE UNITED STATES

In this section, the job content matrices of Canada and the United States are compared. The discussion begins with an analysis of the differing patterns of job families and content levels, and a comparison of changes since 1940. The final position contains an analysis of the sources of differences in job content levels in 1960-61.

Job Content Levels

The differing content level distributions of Canada and the United States are shown in Chart I. The same general trend toward increased shares for higher job content levels is apparent for both countries. The gains in Canada, however, have been concentrated on level III, with the result that the gap between the two countries at levels I and II has widened, especially since 1950. The two distribu-

tions were most similar in 1950-51, with the Canadian distribution being concentrated more heavily in levels IV and V in 1941, and more sharply peaked at the center in 1961.

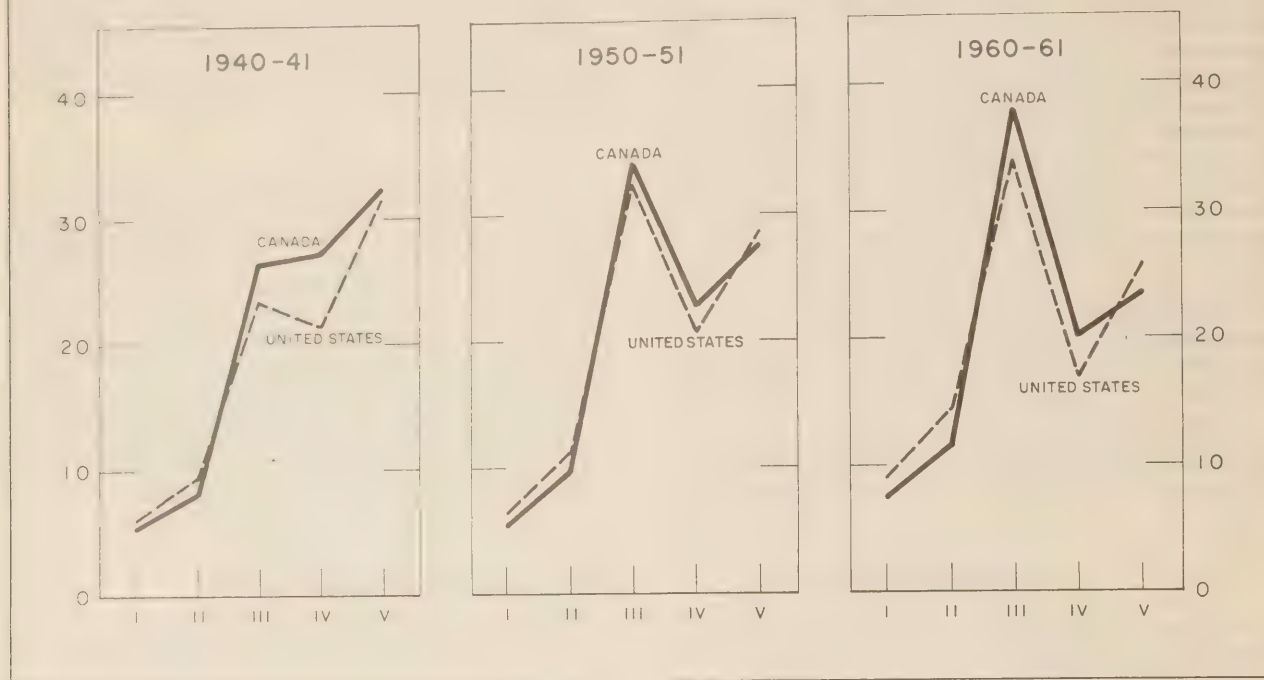
The two distinct patterns of change have been produced at growth rates which differ both by content levels and for aggregate employment. As can be seen in Table 8, the two economies grew at about the same overall rate during the 'forties, with the United States growing faster than Canada at both ends of the content level scale, but more slowly at level III. In the second decade of more sluggish growth, the impact of the slowdown was much greater in the United States, notably on content levels III, IV, and V. As a consequence, the job content distributions of the two economies, which were very similar in 1950/1, had moved apart by 1960/1.

TABLE 8. Growth Rates,¹ by Job Content Levels, Canada and United States 1940/1 - 50/1 and 1950/1 - 60/1

Level	1940/1 - 50/1		1950/1 - 60/1	
	Canada	United States	Canada	United States
I	30.0	39.2	54.1	41.7
II	48.6	50.6	37.1	35.9
III	57.0	41.7	33.8	16.5
IV	4.7	12.5	3.8	- 9.1
V	3.4	12.0	3.2	1.0
Totals	23.2	24.5	20.0	10.8

¹ Percentage change in labour force for Canada and in employment for the United States.

CANADIAN AND U.S. CONTENT LEVEL DISTRIBUTIONS



A comparison of the job content level distributions by sex is shown in Table 9. The female distributions have, on the whole, become more similar

over the twenty year period. However, the male distributions have diverged, with the gaps widening considerably at levels I, II, and III.

TABLE 9. Percentage Distribution¹ by Job Content Levels, by Sex, Canada and United States, 1940/1 and 1960/1

Sex and level	1940/1		1960/1	
	Canada	United States	Canada	United States
Male				
I	4.2	4.8	6.3	8.4
II	9.7	11.8	14.4	18.8
III	24.7	27.8	36.8	31.8
IV	29.9	27.0	20.4	17.5
V	31.5	28.6	22.0	23.5
Female				
I	9.6	9.9	9.3	9.2
II	2.6	2.7	3.6	4.6
III	34.8	30.7	40.8	39.0
IV	16.4	15.6	19.1	15.9
V	36.5	41.1	27.2	31.3

¹ Labour force for Canada: Employment for United States.

Relative Importance and Growth of Job Families

In Table 10, below, the shares of the 18 job families are shown for the two countries in 1960-61. With the exception of non-specialized machine tools, the Canadian economy is more heavily specialized

in basically goods-producing families—tools, machines, inspection, and farming. The rest of the families have about the same shares in both countries, except for personal services and research and design, respectively one third and one half again as important in the United States.

TABLE 10. Percentage Distribution,¹ by Job Family, Canada, 1961 and United States, 1960

Job family	Canada	United States
Tools—Specialized	5.2	3.9
Tools—Non-specialized	16.9	15.1
Machines and equipment—Specialized	2.8	1.6
Machines and equipment—Non-specialized	7.7	12.0
Inspection	3.1	2.9
Vehicle operation	5.6	5.1
Farm	10.0	6.3
Sales A (Considerable knowledge)	2.1	2.1
Sales B (Little knowledge)	5.3	6.6
Clerical	14.1	15.4
Personal service	7.1	8.8
Entertainment	0.5	0.7
Protection	1.3	1.1
Education	3.1	3.1
Health	3.5	3.3
Welfare	0.7	0.6
Administration and organization	9.2	9.2
Research and design	1.6	2.2

¹ Labour force for Canada: Employment for United States.

The process of "catching-up", which lies behind the similarity of the two distributions, is shown in Table 11. Over the 20 year period, there were considerable differences in growth rates by family. Seven Canadian job families, which had about the same share as in the United States in 1960/1, experienced growth rates well above their counterparts in the United States. Families which achieved parity

in this fashion include vehicle operation, sales, entertainment, education, health, and administration and organization. Rates of growth in the remaining job families also tended to exceed the rates in the United States, although the higher overall Canadian growth led to little change in the two countries' relative positions.

TABLE 11. Percentage Change,¹ by Job Family, Canada, 1941-61, United States, 1940-60

Job family	Canada 1941-61	United States 1940-60
Tools—Specialized	31.4	29.0
Tools—Non-specialized	59.4	46.8
Machines and equipment—Specialized	15.4	- 2.1
Machines and equipment—Non-specialized	46.9	53.3
Inspection	192.5	133.0
Vehicle operation	114.0	45.6
Farm	- 42.8	- 52.0
Sales A (Considerable knowledge)	111.6	67.0
Sales B (Little knowledge)	82.8	58.7
Clerical	134.8	114.2
Personal service	23.9	22.1
Entertainment	101.4	51.4
Protection	87.9	56.3
Education	108.1	72.6
Health	193.2	103.9
Welfare	57.6	61.8
Administration and organization	133.5	46.8
Research and design	224.9	224.5
Totals¹	47.9	37.9

¹ Labour force for Canada: Employment for United States.

The Source of Content Level Differences, 1960-61

There are several sources from which these differing aggregate job content structures in the two economies can arise: different relative importance of industries, of job families within industries, and of the various levels within each family. Analysis of the industrial sources of difference would require more time and effort than is available for this study, since the industrial classifications of both countries would have to be adjusted as the occupational classes have been. Thus, this section is restricted to two broad sources of difference—varying importance of the 18 job families, and different content level distributions within them. The first measurement will take account of effects on the level distribution arising from differing technical foci—for example, the fact that farming is more important in Canada than in the United States, while personal services are less important. The second measurement will detect the effects of content level substitutions within major job families.

The methodology is quite straightforward. The percentage of total 1960 United States employment in each of the 90 cells of the matrix was known. Each job family was adjusted to the same relative importance it had in the Canadian census of 1961, without changing the relative importance of the five levels as found in the United States, a statistical procedure known as standardization. Thus, the Specialized Tools family comprised 3.86 per cent of the United States employment, but 5.23 per cent of the Canadian labour force; the United States percentage at each level was then multiplied by the ratio of these numbers, i.e. 1.35. When similar computations were performed for all job families, we obtained the aggregate content level distribution which would characterize the United States if job families there had the same relative importance as in Canada. The differences between this standardized distribution and the actual 1960 United States

distribution are shown in line 2 of Table 12. The residuals between the standardized distribution and the actual 1961 Canadian distribution were attributed to differences of content level distributions within families (line 3, Table 12).¹⁸

¹⁸ Algebraically, this process is easily explained. Let p_j be the proportion of employment in the j th job family; l_{ij} the percentage of the j th job family at the i th content level; and L_i , the proportion of total employment at the i th content level. Using the pre-subscripts US and C for the two countries, we have

$$USL_i = \sum_j US^p_j US^{l_{ij}}$$

$$CL_i = \sum_j C^p_j C^{l_{ij}}$$

The intervening step (content level structure with United States intra-family relationships, but Canadian inter-family relationships) is

$$USL_i^* = \sum_j C^p_j US^{l_{ij}}$$

Adding and subtracting this latter term to the difference between USL_i and CL_i , we have

$$\begin{aligned} USL_i - CL_i &= \sum_j US^p_j US^{l_{ij}} - \sum_j C^p_j US^{l_{ij}} \\ &\quad + \sum_j C^p_j US^{l_{ij}} - \sum_j C^p_j C^{l_{ij}}, \end{aligned}$$

which readily yields

$$= \sum_j (US^p_j - C^p_j) US^{l_{ij}} + \sum_j C^p_j (US^{l_{ij}} - C^{l_{ij}}).$$

The first factor is the effect of differing importance of families; the second assesses the differences arising from differing content level distributions within families.

TABLE 12. Sources of Difference, United States and Canadian Content Level Distributions, 1960/1

Source of difference	Level				
	I	II	III	IV	V
United States distribution	8.7	14.2	34.2	17.0	25.9
Effect of differing importance of families	- .6	+ 1.1	+ .6	+ 1.8	- 2.9
Effect of differing levels within families	- 1.0	- 3.8	+ 3.1	+ 1.2	+ .5
Canadian distribution	7.1	11.5	37.9	20.0	23.5

It is readily seen that the two effects are somewhat different. The differing importance of the 18 families tends toward a compression of the distribution toward the center, with some effect toward raising the overall level itself. As noted earlier, some families with typically low content levels, such as personal services and non-specialized machines and equipment are less important in Canada than in the United States. This accounts for the 2.9 percentage point shift away from level V. The relative smallness of the high content level research and design family leads to most of the .6 percentage point loss by level I.

The effect of differing intra-family level distributions is of another sort. There is some tendency toward compression of the aggregate distribution, since the largest gain is in level III, but the principal effect is a reduction of the job content of the Canadian economy. "Substitution" of levels within

families is at the expense of levels I and II, and explains five eighths of the difference between the importance of level I in the United States and Canada, and more than reverses the increased relative importance of level II which would stem from differing importance of job families alone. Intra-family substitution accounts for five sixths and two fifths respectively of the increased importance of levels III and IV in Canada, and offsets slightly the effect toward diminished importance of level V stemming from the different job family distribution.

In brief, Canadians are more likely than Americans to work in job families with higher average content levels, presumably a reflection of the industrial composition of the two countries. On the other hand, one observes in the Canadian economy comparatively greater employment at the lower content levels *within* these families.

SUMMARY AND CONCLUSIONS

In the twenty years from 1941 to 1961, the shares of the various content levels and job families in the Canadian economy changed substantially. The importance of higher job content levels, especially level III, increased while levels IV and V declined relative to the rest of the labour force. Changes in job families varied between the extremes of research and design, which more than tripled, and farm jobs which declined by three sevenths over the period.

These patterns of growth were such that a number of job families which were relatively small in 1941 had attained rough parity with their importance in the United States by 1961. Major examples were education, health, and administration and organization. The generally similar job family distributions of 1961 are thus the product of varied growth rates in the previous twenty years. The counter-cyclical behaviour of various low level, easy entry jobs, especially in personal services, was common to both Canadian and United States experience.

A trend toward regional homogeneity of job content level distributions noted in the earlier study of the United States was also evident in the Canadian provincial distributions.

Job content level distributions in the two countries moved toward closer similarity from 1941 to 1951, when the growth rate of total employment was about the same. The reduction of overall growth in the 'fifties was greater in the United States, which led to a greater impact there on the lower content levels' rates of growth. This impact caused the content level distributions to diverge in the decade from 1951 to 1961. The differences between the two aggregate distributions in 1960-1961 were seen to be the result of two effects. The differing importance of job families in the two countries caused the Canadian distribution to be more compressed about the center, while the varying distributions by level within families led to a net downward impact on Canadian job content.

APPENDIX I
Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961

Job content level	Canada		Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.
	Male	Female											
	thousands												
Totals:													
1941	3,350.3	829.5	—	30.7	190.5	146.5	1,181.6	1,449.4	264.7	315.0	287.5	312.8	—
1951	4,000.8	1,150.7	104.8	32.8	207.0	164.5	1,436.9	1,837.9	291.4	299.4	344.6	430.5	—
1961	4,471.1	1,709.8	107.0	32.2	213.3	166.8	1,689.1	2,299.0	326.1	314.2	467.6	548.0	12.5
I—1941	139.9	79.3	—	1.3	8.1	6.1	72.1	75.1	12.6	14.5	13.4	16.0	—
1951	189.1	95.8	4.5	1.4	10.5	8.1	84.8	103.3	14.6	15.4	18.1	24.1	—
1961	280.4	158.7	6.7	1.8	14.6	11.8	127.2	163.2	20.7	19.1	33.2	39.2	0.8
II—1941	325.8	21.7	—	1.0	13.0	8.4	95.5	149.8	19.7	13.3	16.5	29.6	—
1951	473.2	43.2	7.3	1.5	17.1	12.4	138.7	222.8	24.5	16.9	26.9	48.1	—
1961	645.6	62.2	9.5	1.9	21.9	15.9	188.8	297.8	32.4	22.6	46.2	68.8	1.5
III—1941	826.5	289.1	—	4.4	48.5	32.8	316.0	446.4	66.4	49.6	55.9	95.2	—
1951	1,282.3	469.8	28.3	7.6	66.3	49.8	488.5	685.8	96.5	66.2	101.2	161.9	—
1961	1,646.5	697.8	38.2	9.2	78.5	60.6	647.0	913.2	118.5	87.6	164.7	219.1	4.4
IV—1941	1,003.0	136.4	—	13.8	63.0	42.1	265.0	335.0	81.0	141.7	118.7	79.2	—
1951	995.6	197.4	32.5	13.4	58.8	39.3	274.4	349.3	82.4	133.3	120.9	88.2	—
1961	912.0	326.6	23.2	11.3	47.9	31.5	283.8	414.8	81.7	117.9	123.3	100.1	2.4
V—1941	1,055.1	303.0	—	10.3	57.9	57.1	433.0	443.1	85.0	95.9	83.1	92.9	—
1951	1,059.9	344.6	32.2	8.8	54.1	55.0	450.6	476.6	73.6	67.5	77.3	108.3	—
1961	985.1	464.4	28.0	8.0	50.3	47.1	442.3	509.8	72.6	67.2	100.1	120.7	3.3
Tools—Specialized:													
1941	219.6	26.4	—	0.9	13.3	17.2	84.6	76.9	10.5	6.0	7.3	29.4	—
1951	267.5	44.8	14.2	1.2	14.0	20.3	101.0	94.2	11.5	6.2	10.8	39.0	—
1961	267.0	56.3	11.0	1.1	13.0	14.6	106.8	105.4	11.7	7.2	14.1	37.8	0.7
I—1941	1.0	—	—	—	—	—	0.3	0.4	0.1	—	—	0.1	—
1951	4.4	—	0.1	—	0.3	0.1	0.6	1.6	0.2	0.2	0.7	0.6	—
1961	8.4	0.1	0.2	—	0.4	0.2	1.3	3.1	0.5	0.4	1.0	1.1	0.1
II—1941	22.9	2.3	—	0.1	0.6	0.4	6.6	12.3	1.6	0.8	0.9	1.9	—
1951	23.0	1.9	0.2	0.1	0.6	0.5	7.1	12.0	1.3	0.6	0.8	1.9	—
1961	26.7	3.0	0.2	0.1	0.6	0.5	9.6	13.6	1.3	0.7	1.1	2.0	—
III—1941	64.7	9.4	—	0.3	2.7	1.8	24.2	29.0	4.4	2.9	3.4	5.3	—
1951	74.9	11.8	1.0	0.3	3.0	2.1	27.5	35.7	4.7	2.5	4.0	5.9	—
1961	89.5	14.4	1.4	0.3	3.0	2.2	33.0	42.1	5.2	3.0	5.6	7.9	0.2
IV—1941	37.1	13.2	—	0.2	2.2	1.7	18.1	16.7	2.6	1.3	1.8	5.5	—
1951	45.7	16.4	1.0	0.2	2.2	1.8	21.4	19.8	2.7	1.4	2.6	8.8	—
1961	42.4	18.0	1.0	0.2	1.9	1.4	18.9	21.7	2.4	1.3	3.0	8.8	0.1
V—1941	93.9	1.5	—	0.3	7.8	13.1	35.3	18.5	1.8	1.0	1.0	16.6	—
1951	119.5	14.7	11.9	0.5	7.9	15.9	44.4	25.1	2.6	1.4	2.7	21.9	—
1961	100.0	20.8	8.2	0.5	7.1	10.3	44.0	24.9	2.3	1.8	3.4	18.0	0.4
Tools—Non-specialized:													
1941	640.4	15.2	—	2.7	30.6	21.8	198.2	256.4	34.9	22.9	27.9	60.4	—
1951	888.5	29.7	19.1	3.9	38.4	28.9	261.5	354.2	48.6	29.4	50.1	84.2	—
1961	994.4	50.8	21.6	4.4	39.9	31.4	300.5	390.6	52.6	36.2	68.9	96.6	2.3
I—1941	0.5	—	—	—	—	—	0.1	0.3	—	—	—	—	—
1951	0.8	0.1	—	—	—	—	0.3	0.5	—	—	—	0.1	—
1961	0.8	0.1	—	—	—	—	0.4	0.4	—	—	—	0.1	—
II—1941	141.5	0.8	—	0.4	4.8	3.2	38.2	65.2	7.7	5.0	6.4	11.3	—
1951	122.4	1.2	1.3	0.2	3.0	2.1	32.1	62.2	5.0	2.2	4.8	10.8	—
1961	149.5	1.3	1.7	0.3	4.4	2.8	40.1	70.1	6.0	3.2	7.4	14.3	0.3
III—1941	197.2	1.5	—	0.9	10.3	5.8	64.0	76.9	10.6	4.9	7.3	17.9	—
1951	364.4	3.9	7.8	1.8	15.4	10.6	108.2	137.1	20.3	11.7	22.3	33.0	—
1961	437.9	5.3	9.1	2.2	17.5	12.9	135.4	158.5	21.8	15.8	30.5	38.6	0.9
IV—1941	22.7	1.4	—	0.1	0.7	0.5	5.2	9.9	1.7	1.4	1.5	3.0	—
1951	40.9	3.6	0.7	0.2	1.6	1.0	9.0	18.4	2.9	2.2	3.1	5.5	—
1961	59.5	23.1	1.2	0.2	2.4	1.7	20.5	33.7	5.0	3.4	6.5	8.0	0.2
V—1941	278.5	11.7	—	1.3	14.8	12.2	90.6	104.0	14.9	11.5	12.7	28.2	—
1951	359.9	20.9	9.3	1.8	18.4	15.1	111.9	135.9	20.5	13.3	19.8	34.8	—
1961	346.7	20.9	9.6	1.7	15.6	14.0	104.0	127.9	19.8	13.8	24.5	35.7	0.9

Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961 - Continued

Job content level	Canada		Nfld.	P.E.I.	N.S.	N.B.	Qué.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.
	Male	Female											
	thousands												
Machines and equipment—Specialized:													
1941	139.3	8.2	—	1.7	25.4	6.6	32.5	43.5	5.4	1.9	8.8	21.8	—
1951	153.5	9.8	21.0	2.2	23.4	6.9	35.0	40.9	5.5	2.7	9.4	16.2	—
1961	163.8	6.5	12.1	2.5	16.8	6.7	37.8	53.4	6.9	5.2	10.2	16.6	2.0
I—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
II—1941	7.7	0.8	—	—	0.4	0.2	2.0	3.4	0.5	0.4	0.5	1.0	—
1951	12.3	1.1	0.4	—	0.5	0.3	3.4	5.6	0.8	0.4	0.7	1.4	—
1961	16.2	1.0	0.4	—	0.5	0.3	4.7	7.3	0.8	0.4	0.9	1.6	0.3
III—1941	24.4	4.1	—	—	1.0	0.6	11.3	11.0	1.0	0.4	0.5	2.7	—
1951	28.9	4.7	0.5	0.2	1.2	1.0	12.4	11.4	1.6	0.9	1.5	2.8	—
1961	52.0	3.4	1.4	0.3	2.1	1.7	16.2	18.6	2.7	2.4	4.0	5.5	0.3
IV—1941	107.2	3.3	—	1.6	24.0	5.9	19.1	29.1	3.8	1.1	7.8	18.0	—
1951	112.3	3.9	20.2	2.0	21.7	5.6	19.3	23.9	3.1	1.4	7.2	12.0	—
1961	95.6	2.1	10.2	2.2	14.2	4.7	16.9	27.5	3.4	2.5	5.3	9.5	1.4
V—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
Machines and equipment—Non-specialized:													
1941	227.4	97.8	—	0.4	9.0	5.6	114.9	148.3	14.0	5.5	8.5	19.0	—
1951	304.4	136.7	5.6	1.1	12.6	9.0	155.7	197.0	16.0	5.1	10.7	28.4	—
1961	329.8	147.9	5.1	1.3	12.5	9.5	168.8	206.7	17.0	6.2	15.0	34.2	1.5
I—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
II—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
III—1941	30.7	—	—	—	1.3	0.8	7.4	12.7	1.4	0.8	1.5	4.7	—
1951	40.7	—	0.7	0.1	1.7	1.0	8.7	18.2	1.6	0.8	2.0	6.0	—
1961	46.7	—	1.0	0.1	1.8	1.2	9.3	21.9	2.0	1.2	2.3	5.8	0.2
IV—1941	13.6	—	—	0.1	0.9	0.4	4.9	4.4	0.7	0.5	0.5	1.2	—
1951	22.3	—	0.6	0.1	1.8	0.7	6.7	8.7	0.8	0.5	0.6	1.9	—
1961	14.7	—	0.3	0.1	1.0	0.3	4.5	5.9	0.7	0.3	0.4	1.2	—
V—1941	183.0	97.8	—	0.3	6.8	4.4	102.6	131.2	11.9	4.2	6.4	13.1	—
1951	241.4	136.7	4.3	0.9	9.1	7.4	140.3	170.1	13.6	3.8	8.1	20.5	—
1961	268.4	147.9	3.8	1.1	9.7	8.0	155.1	178.9	14.3	4.7	12.2	27.2	1.3
Inspection:													
1941	58.4	8.1	—	0.1	2.9	1.7	20.5	30.0	2.7	1.6	2.2	4.8	—
1951	116.2	12.5	1.6	0.4	4.2	3.5	36.9	57.2	5.2	2.8	5.4	11.6	—
1961	180.6	14.0	2.6	0.6	5.7	4.4	55.0	83.3	8.0	4.9	11.8	17.7	0.4
I—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
II—1941	32.3	2.4	—	—	2.2	0.9	11.2	15.1	1.2	0.6	1.0	2.4	—
1951	80.6	7.0	1.3	0.2	3.1	2.3	26.1	38.5	3.2	1.7	3.6	7.6	—
1961	107.2	5.4	1.6	0.3	3.6	2.7	32.6	47.4	4.9	3.0	7.0	9.3	0.2
III—1941	21.4	5.1	—	0.1	0.6	0.5	7.2	13.5	1.4	0.9	1.1	1.3	—
1951	28.6	4.8	0.2	0.2	0.9	0.9	7.7	16.9	1.9	1.1	1.7	2.0	—
1961	66.9	8.4	0.9	0.4	1.9	1.5	20.2	34.9	3.1	1.9	4.7	5.6	0.2
IV—1941	3.8	—	—	—	0.1	0.3	1.5	0.7	—	—	0.1	1.1	—
1951	6.0	0.2	0.1	—	0.2	0.3	2.5	1.1	—	—	0.1	1.9	—
1961	6.3	0.2	0.1	—	0.1	0.3	2.2	0.9	—	—	0.1	2.7	—
V—1941	1.0	0.5	—	—	—	—	0.5	0.7	0.1	—	—	0.1	—
1951	1.0	0.6	—	—	—	—	0.6	0.7	0.1	—	—	0.1	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—

Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961														
Job content level	Canada		Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	
	Male	Female												
	thousands													
Vehicle operation:														
1941	161.7	0.3	—	0.7	8.8	6.4	46.7	58.9	9.7	7.1	8.9	14.7	—	
1951	264.6	1.8	5.5	1.3	12.8	10.1	74.6	91.6	13.9	10.8	17.6	28.0	—	
1961	344.0	2.6	7.5	1.5	12.9	10.9	97.1	117.7	17.4	16.2	28.7	35.9	0.6	
I - 1941	—	—	—	—	—	—	—	—	—	—	—	—	—	
1951	—	—	—	—	—	—	—	—	—	—	—	—	—	
1961	—	—	—	—	—	—	—	—	—	—	—	—	—	
II - 1941	17.8	—	—	0.1	1.4	0.7	3.9	5.9	1.1	1.0	1.0	2.6	—	
1951	24.7	—	1.1	0.2	1.7	1.0	5.4	7.9	1.3	1.1	1.4	3.6	—	
1961	24.2	—	1.1	0.1	1.5	0.8	5.1	7.5	1.3	0.9	1.5	4.2	0.1	
III - 1941	105.6	0.2	—	0.5	5.7	4.3	31.6	39.8	6.0	3.9	5.6	8.4	—	
1951	208.2	0.9	4.0	1.1	9.7	7.9	61.9	70.7	10.5	8.1	13.8	21.2	—	
1961	288.2	1.8	5.7	1.2	9.9	8.6	85.7	97.4	14.4	13.5	24.4	28.5	0.5	
IV - 1941	29.9	—	—	0.1	1.2	0.9	9.4	10.1	2.0	1.6	1.8	3.1	—	
1951	10.4	—	—	—	0.2	0.2	3.0	4.0	0.9	0.4	0.7	0.9	—	
1961	5.0	—	0.1	—	0.2	0.2	0.7	2.3	0.4	0.3	0.3	0.3	—	
V - 1941	8.3	0.2	—	—	0.5	0.6	1.9	3.2	0.6	0.6	0.5	0.6	—	
1951	21.3	0.9	0.4	0.1	1.2	1.1	4.3	8.9	1.2	1.2	1.6	2.3	—	
1961	26.6	0.8	0.6	0.2	1.3	1.2	5.6	10.5	1.2	1.4	2.5	2.8	—	
Farm:														
1941	1,064.8	19.0	—	16.7	37.6	41.8	255.1	270.3	92.3	187.4	141.2	41.6	—	
1951	780.6	32.1	3.4	12.8	22.8	26.2	192.3	196.5	72.7	146.6	113.6	25.7	—	
1961	544.7	75.2	1.5	9.0	11.5	12.0	126.6	160.5	58.2	118.2	101.3	21.0	—	
I - 1941	—	—	—	—	—	—	—	—	—	—	—	—	—	
1951	—	—	—	—	—	—	—	—	—	—	—	—	—	
1961	—	—	—	—	—	—	—	—	—	—	—	—	—	
II - 1941	1.8	—	—	—	0.1	0.1	0.2	0.6	0.2	0.2	0.3	0.2	—	
1951	2.6	0.1	—	—	0.1	0.1	0.4	0.9	0.2	0.3	0.3	0.3	—	
1961	1.6	0.1	—	—	0.1	0.1	0.2	0.6	0.1	0.1	0.2	0.2	—	
III - 1941	1.2	—	—	—	0.1	—	0.1	0.4	0.1	0.2	0.2	0.2	—	
1951	1.2	—	—	—	0.1	—	0.2	0.4	0.1	0.1	0.2	0.2	—	
1961	1.6	0.1	—	—	0.1	0.1	0.2	0.7	0.1	0.1	0.2	0.2	—	
IV - 1941	630.7	14.1	—	10.2	22.3	24.3	133.6	160.0	54.0	123.9	92.2	24.4	—	
1951	538.2	8.1	2.5	8.7	15.4	17.7	109.3	133.3	50.0	109.1	82.2	18.2	—	
1961	385.2	9.0	0.8	5.9	7.3	7.1	75.4	96.5	38.7	85.4	65.2	11.9	—	
V - 1941	431.1	4.9	—	6.4	15.1	17.4	121.2	109.4	38.0	63.2	48.5	16.8	—	
1951	238.6	23.8	0.9	4.1	7.1	8.3	82.5	62.0	22.4	37.1	30.9	7.0	—	
1961	156.3	66.1	0.6	3.1	4.1	4.8	50.8	62.7	19.3	32.5	35.7	8.6	—	
Sales - A (Considerable knowledge):														
1941	58.3	2.7	—	0.1	1.5	1.1	14.4	26.6	3.9	4.5	4.0	4.9	—	
1951	93.6	6.9	0.6	0.2	2.4	1.8	25.3	42.8	6.2	5.4	6.6	9.2	—	
1961	117.8	11.5	1.0	0.3	3.1	2.3	33.6	59.0	7.3	3.5	7.4	11.9	—	
I - 1941	4.5	0.2	—	—	—	—	0.5	1.0	0.4	1.5	0.9	0.2	—	
1951	10.9	1.2	0.1	—	0.3	0.2	2.3	4.0	0.9	1.9	1.5	0.9	—	
1961	13.5	2.6	0.1	—	0.3	0.3	3.9	7.6	0.9	0.5	1.0	1.3	—	
II - 1941	28.3	1.4	—	0.1	0.8	0.5	7.2	12.6	1.9	1.7	1.8	3.2	—	
1951	35.0	2.2	0.2	0.1	0.9	0.7	8.9	15.3	2.1	2.0	2.8	4.3	—	
1961	50.8	4.9	0.3	0.1	1.3	0.9	14.0	24.6	2.8	1.7	3.6	6.2	—	
III - 1941	25.5	1.1	—	—	0.7	0.5	6.7	12.9	1.6	1.3	1.3	1.5	—	
1951	47.7	3.4	0.4	0.1	1.3	1.0	14.0	23.5	3.2	1.5	2.2	4.0	—	
1961	53.5	4.0	0.5	0.1	1.4	1.1	15.6	26.7	3.6	1.3	2.8	4.3	—	
IV - 1941	—	—	—	—	—	—	—	—	—	—	—	—	—	
1951	—	—	—	—	—	—	—	—	—	—	—	—	—	
1961	—	—	—	—	—	—	—	—	—	—	—	—	—	
V - 1941	—	—	—	—	—	—	—	—	—	—	—	—	—	
1951	—	—	—	—	—	—	—	—	—	—	—	—	—	
1961	—	—	—	—	—	—	—	—	—	—	—	—	—	

Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961 - Continued

Job content level	Canada		Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.
	Male	Female											
	thousands												
Sales—B (Little knowledge):													
1941	123.1	57.7	—	1.1	8.1	5.6	53.1	69.3	10.8	8.2	9.0	15.5	—
1951	143.7	98.3	5.0	1.4	10.0	7.4	65.8	89.3	13.6	10.8	15.4	23.4	—
1961	188.6	141.9	6.5	1.5	12.4	9.2	86.8	124.3	16.9	13.9	25.4	33.3	0.3
I—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
II—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
III—1941	7.5	0.9	—	—	0.3	0.2	2.8	3.4	0.6	0.3	0.3	0.5	—
1951	2.3	1.1	—	—	0.1	0.1	0.9	1.5	0.2	0.1	0.2	0.4	—
1961	2.5	2.5	—	—	0.1	0.1	1.2	2.2	0.3	0.1	0.3	0.6	—
IV—1941	111.7	56.7	—	1.0	7.7	5.3	49.2	64.3	10.0	7.8	8.6	14.6	—
1951	136.4	97.1	4.9	1.3	9.6	7.2	63.9	85.9	13.1	10.5	14.9	22.1	—
1961	178.9	139.2	6.5	1.5	11.8	8.9	84.3	119.3	16.3	13.6	24.3	31.4	0.3
V—1941	3.9	—	—	—	0.2	0.1	1.1	1.7	0.2	0.1	0.1	0.4	—
1951	5.1	0.1	—	—	0.3	0.1	1.0	1.9	0.4	0.2	0.3	1.0	—
1961	7.1	0.3	—	—	0.4	0.2	1.4	2.8	0.3	0.2	0.7	1.3	—
Clerical:													
1941	201.0	169.4	—	1.2	12.6	9.2	102.4	160.6	24.8	14.7	17.2	27.7	—
1951	273.2	351.8	8.0	2.1	19.8	15.4	165.3	264.9	37.3	22.4	33.6	55.9	—
1961	337.1	532.6	10.7	2.7	26.1	19.9	223.1	370.8	46.7	29.2	60.0	79.3	1.1
I—1941	31.6	4.3	—	0.1	0.8	0.6	14.5	12.3	1.9	1.1	1.6	3.0	—
1951	32.8	3.4	0.5	0.1	0.9	0.6	10.6	14.9	1.7	0.9	2.0	3.9	—
1961	29.8	4.4	0.3	0.1	1.0	0.7	9.0	14.5	1.3	0.8	2.2	4.2	—
II—1941	4.0	0.3	—	—	0.1	0.1	1.0	1.8	0.4	0.2	0.3	0.4	—
1951	3.2	0.3	0.1	—	0.1	0.1	0.8	1.4	0.2	0.2	0.2	0.4	—
1961	5.3	0.7	0.1	—	0.2	0.2	1.6	2.4	0.3	0.2	0.5	0.6	—
III—1941	139.7	158.7	—	0.9	10.4	7.6	77.0	133.8	20.5	12.1	13.9	22.1	—
1951	207.8	333.7	6.8	1.7	17.2	13.6	140.8	232.2	32.8	19.6	28.9	47.9	—
1961	262.0	495.2	9.3	2.2	22.5	17.4	196.0	323.5	41.2	25.5	51.7	67.1	0.9
IV—1941	14.0	5.9	—	0.1	0.9	0.6	4.9	8.7	1.2	0.8	1.0	1.5	—
1951	18.7	13.6	0.4	0.2	1.2	0.9	8.8	12.7	1.8	1.3	1.9	3.0	—
1961	33.6	31.6	0.8	0.3	2.3	1.6	13.5	28.1	3.6	2.6	5.3	7.0	0.1
V—1941	11.7	0.2	—	—	0.4	0.3	5.0	3.9	0.8	0.4	0.4	0.7	—
1951	10.7	0.8	0.3	0.1	0.3	0.2	4.3	3.7	0.8	0.4	0.6	0.7	—
1961	6.4	0.7	0.2	—	0.2	0.1	3.0	2.3	0.3	0.2	0.4	0.4	—
Personal service:													
1941	78.4	274.8	—	2.6	18.9	13.7	103.7	115.8	24.3	23.4	21.5	29.2	—
1951	104.1	204.6	7.3	2.1	15.0	10.7	89.3	100.7	18.0	15.5	20.0	30.2	—
1961	146.6	291.3	7.5	2.2	17.1	12.5	118.2	161.1	23.8	18.2	32.2	43.1	1.1
I—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
II—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
III—1941	35.4	67.2	—	0.7	5.9	4.3	23.8	35.8	6.3	7.7	7.4	10.8	—
1951	22.0	43.3	1.6	0.5	3.3	2.6	19.3	21.1	3.2	3.2	4.0	5.5	—
1961	48.1	60.2	1.8	0.5	3.7	2.9	31.1	38.0	5.5	3.5	8.4	11.5	0.4
IV—1941	5.9	21.8	—	0.1	1.0	0.6	6.9	12.4	1.9	1.0	1.3	2.6	—
1951	25.7	17.4	0.7	0.3	2.0	1.2	9.8	14.1	3.3	2.5	3.3	5.9	—
1961	34.3	27.1	0.8	0.3	1.9	1.3	11.6	28.2	4.2	2.7	4.1	6.3	—
V—1941	37.2	185.8	—	1.8	12.1	8.8	73.1	67.6	16.2	14.6	12.8	15.8	—
1951	56.4	144.9	5.0	1.3	9.7	6.8	60.2	65.5	11.5	9.7	12.7	18.7	—
1961	64.2	204.0	4.9	1.4	11.5	8.3	75.5	94.9	14.1	12.0	19.7	25.3	0.6

Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961 - Continued

Job content level	Canada		Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.
	Male	Female											
thousands													
Entertainment:													
1941	8.9	5.7	—	0.1	0.4	0.3	3.9	6.2	1.0	0.5	0.7	1.6	—
1951	11.6	7.3	0.1	0.1	0.6	0.3	5.2	7.9	1.1	0.6	1.0	1.9	—
1961	18.1	11.5	0.2	0.1	0.8	0.4	8.6	12.4	1.4	0.7	1.8	3.0	—
I — 1941	6.2	5.0	—	—	0.3	0.2	2.9	4.9	0.7	0.4	0.5	1.2	—
1951	7.1	5.8	0.1	0.1	0.4	0.2	3.8	5.6	0.7	0.3	0.6	1.2	—
1961	10.2	8.5	0.1	0.1	0.5	0.3	5.4	8.1	0.9	0.4	1.1	1.7	—
II — 1941	0.6	0.1	—	—	—	—	0.2	0.3	—	—	—	0.1	—
1951	0.8	0.2	—	—	—	—	0.3	0.5	0.1	—	—	0.1	—
1961	2.1	0.7	—	—	0.1	—	0.8	1.2	0.1	0.1	0.1	0.3	—
III — 1941	0.9	0.2	—	—	—	—	0.3	0.5	0.1	—	0.1	0.1	—
1951	1.1	0.2	—	—	—	—	0.4	0.5	0.1	0.1	0.1	0.1	—
1961	1.2	1.0	—	—	0.1	—	0.8	0.9	0.1	—	0.1	0.3	—
IV — 1941	0.4	0.1	—	—	—	—	0.1	0.2	—	—	—	0.1	—
1951	0.4	0.1	—	—	—	—	0.1	0.2	—	—	—	—	—
1961	0.4	0.3	—	—	—	—	0.3	0.3	—	—	—	0.1	—
V — 1941	0.8	0.3	—	—	0.1	—	0.3	0.3	0.1	—	—	0.2	—
1951	2.2	0.9	0.1	—	0.1	0.1	0.6	1.1	0.2	0.2	0.2	0.4	—
1961	4.2	1.0	0.1	—	0.1	0.1	1.4	1.9	0.3	0.2	0.4	0.7	—
Protection:													
1941	43.4	0.5	—	0.1	1.6	1.3	13.6	16.6	2.8	1.8	2.0	4.0	—
1951	56.1	0.9	1.2	0.2	2.3	1.6	17.4	20.9	2.9	2.0	2.8	5.7	—
1961	80.5	2.0	1.7	0.2	3.1	2.3	25.0	30.6	3.6	2.9	5.0	7.8	0.3
I — 1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
II — 1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
III — 1941	21.8	0.4	—	0.1	0.8	0.6	7.0	7.6	1.4	1.2	1.2	2.3	—
1951	29.5	0.5	0.7	0.1	1.1	0.8	8.7	10.6	1.7	1.4	1.7	3.2	—
1961	45.0	0.7	1.0	0.1	1.8	1.3	13.1	16.5	2.2	2.1	3.1	4.4	0.2
IV — 1941	20.8	—	—	0.1	0.8	0.7	6.5	8.6	1.3	0.6	0.7	1.6	—
1951	25.9	0.4	0.5	0.1	1.2	0.8	8.6	10.0	1.1	0.6	1.1	2.5	—
1961	34.4	1.2	0.6	0.1	1.4	1.0	11.8	13.7	1.2	0.7	1.7	3.3	0.1
V — 1941	0.8	—	—	—	—	—	0.1	0.3	0.1	0.1	0.1	0.1	—
1951	0.7	—	—	—	—	—	0.1	0.3	0.1	0.1	0.1	0.1	—
1961	1.1	—	—	—	—	—	0.1	0.4	0.2	0.1	0.1	0.1	—
Education:													
1941	27.3	65.3	—	0.8	4.1	3.3	32.5	26.4	5.3	8.0	6.5	5.5	—
1951	36.1	77.1	2.6	0.8	5.3	4.3	38.2	32.5	6.1	8.0	7.4	7.9	—
1961	65.8	126.9	4.3	1.1	7.7	6.7	60.3	61.2	9.7	10.5	14.9	15.8	0.4
I — 1941	27.3	65.3	—	0.8	4.1	3.3	32.5	26.4	5.3	8.0	6.5	5.5	—
1951	36.1	77.1	2.6	0.8	5.3	4.3	38.2	32.5	6.1	8.0	7.4	7.9	—
1961	65.8	126.9	4.3	1.1	7.7	6.7	60.3	61.2	9.7	10.5	14.9	15.8	0.4
II — 1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
III — 1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
IV — 1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
V — 1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—

Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961—Continued

Job content level	Canada		Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.
	Male	Female											
	thousands												
Health:													
1941	27.0	47.5	—	0.5	3.4	2.5	17.8	30.8	4.6	3.8	4.2	7.0	—
1951	46.8	78.3	1.7	0.7	4.8	4.0	29.5	48.0	6.6	7.3	8.0	14.3	—
1961	64.9	153.5	3.2	1.1	8.1	6.3	50.5	84.9	12.3	11.8	16.5	23.4	0.4
I—1941	16.0	0.7	—	0.1	0.6	0.4	4.5	6.9	1.0	0.9	1.0	1.3	—
1951	20.9	1.0	0.2	0.1	0.8	0.5	5.7	8.7	1.2	1.0	1.4	2.2	—
1961	28.7	1.8	0.3	0.1	1.0	0.6	8.4	11.9	1.6	1.4	2.2	3.2	—
II—1941	5.0	0.5	—	—	0.1	0.1	1.5	2.6	0.3	0.2	0.2	0.5	—
1951	12.1	4.2	0.2	0.1	0.5	0.4	4.1	7.2	0.8	0.6	1.0	1.5	—
1961	12.2	14.2	0.3	0.1	0.9	0.6	6.2	10.0	1.7	1.5	2.2	2.9	—
III—1941	2.6	26.6	—	0.2	1.4	1.0	6.7	12.2	1.6	1.4	1.7	2.9	—
1951	3.1	36.9	0.4	0.2	1.7	1.3	8.2	15.8	2.0	2.4	2.6	5.3	—
1961	5.1	63.2	0.8	0.4	2.9	2.1	13.6	27.5	3.4	3.9	5.4	8.1	0.2
IV—1941	3.3	19.8	—	0.1	1.2	0.9	5.2	9.1	1.6	1.4	1.3	2.2	—
1951	10.7	36.2	0.9	0.3	1.7	1.8	11.5	16.3	2.6	3.3	3.1	5.3	—
1961	18.8	74.3	1.7	0.5	3.3	2.9	22.4	35.4	5.6	5.0	6.7	9.3	0.2
V—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
Welfare:													
1941	17.4	10.8	—	0.2	1.1	1.0	12.1	7.4	1.4	1.8	1.7	1.5	—
1951	19.9	14.7	0.6	0.2	1.4	1.2	14.9	9.1	1.5	1.9	1.8	1.9	—
1961	29.1	15.5	0.9	0.3	1.7	1.5	16.3	13.6	2.0	2.4	2.7	3.0	0.2
I—1941	14.6	1.3	—	0.1	0.8	0.6	4.6	5.5	0.9	1.3	1.1	1.0	—
1951	17.3	2.8	0.4	0.1	0.9	0.7	5.7	6.9	1.1	1.5	1.3	1.5	—
1961	23.7	6.1	0.6	0.2	1.2	1.0	7.9	10.4	1.6	1.9	2.2	2.6	0.1
II—1941	2.8	9.5	—	0.1	0.4	0.3	7.6	1.9	0.6	0.5	0.6	0.5	—
1951	2.6	11.9	0.2	0.1	0.5	0.4	9.2	2.2	0.4	0.4	0.5	0.4	—
1961	5.4	9.4	0.3	0.1	0.4	0.5	8.4	3.2	0.4	0.6	0.5	0.4	0.1
III—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
IV—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
V—1941	—	—	—	—	—	—	—	—	—	—	—	—	—
1951	—	—	—	—	—	—	—	—	—	—	—	—	—
1961	—	—	—	—	—	—	—	—	—	—	—	—	—
Administration and organization:													
1941	224.0	19.0	—	0.8	10.1	7.0	66.3	91.1	14.9	15.1	15.1	21.5	—
1951	387.9	40.3	7.0	2.0	15.9	12.1	113.0	163.9	22.8	20.9	27.9	42.5	—
1961	502.9	64.8	8.9	2.2	18.6	14.4	146.7	219.4	26.9	24.3	43.4	59.5	1.0
I—1941	12.9	1.4	—	0.1	0.5	0.4	4.4	5.4	0.9	0.7	0.8	1.2	—
1951	16.8	2.2	0.2	0.1	0.5	0.5	5.2	7.6	1.1	0.7	1.1	2.0	—
1961	24.9	4.0	0.2	0.1	0.7	0.6	8.2	11.9	1.3	1.0	1.9	2.9	—
II—1941	56.5	3.5	—	0.2	2.1	1.6	14.4	25.7	4.1	2.7	3.3	5.2	—
1951	143.9	12.2	2.4	0.6	5.8	4.5	37.3	63.8	8.8	7.4	10.3	15.1	—
1961	224.6	20.8	3.4	0.8	7.8	6.2	60.5	99.9	11.9	9.7	19.6	25.0	0.5
III—1941	147.8	13.9	—	0.5	7.2	4.9	45.9	57.0	9.4	11.4	10.6	14.5	—
1951	222.1	25.5	4.3	1.3	9.5	7.0	69.6	90.2	12.6	12.6	16.1	24.4	—
1961	246.2	37.8	5.2	1.4	9.8	7.4	75.7	103.8	13.1	13.2	21.1	30.7	0.4
IV—1941	1.9	0.1	—	—	0.1	0.1	0.5	0.8	0.1	0.1	0.1	0.2	—
1951	2.1	0.2	—	—	0.1	0.1	0.5	0.9	0.1	0.1	0.1	0.2	—
1961	2.9	0.2	—	—	0.1	0.1	0.8	1.3	0.2	0.1	0.3	0.3	—
V—1941	5.0	0.2	—	—	0.2	0.1	1.2	2.2	0.4	0.2	0.3	0.4	—
1951	3.0	0.2	—	—	—	—	0.4	1.4	0.2	0.1	0.3	0.8	—
1961	4.3	2.0	0.1	—	0.2	0.1	1.5	2.6	0.4	0.3	0.5	0.6	—

Job Content Matrices, Canada and Provinces, 1941, 1951 and 1961 - Concluded

[illegible]

APPENDIX II A
Mean Earnings by Sex for the Job Content Matrix, Canada, 1961

Job content level	Tools— Specialized	Tools—Non- specialized	Machines and equipment— Specialized	Machines and equipment— Non- specialized	Inspection	Vehicle operation	Farm	Sales	
								A (Consid- erable knowledge)	B (Little knowledge)
Totals:									
I	3,543	3,917	—	—	—	—	—	4,933	—
II	3,897	3,781	4,387	—	4,737	5,753	3,106	5,025	—
III	3,366	3,348	3,282	4,328	4,242	3,045	3,106	3,178	2,734
IV	2,660	2,193	3,549	3,818	3,285	3,631	1,877	—	2,780
V	2,086	2,189	—	2,743	—	2,884	1,126	—	589
Male:									
I	3,554	4,231	—	—	—	—	—	5,268	—
II	4,116	3,796	4,502	—	4,839	5,754	3,135	5,230	—
III	3,632	3,368	3,376	4,328	4,469	3,054	3,135	3,269	3,705
IV	3,015	2,633	3,594	3,821	3,324	3,631	1,892	—	3,881
V	2,225	2,233	—	3,311	—	2,894	1,182	—	586
Female:									
I	2,019	2,253	—	—	—	—	—	3,126	—
II	2,038	2,018	2,344	—	2,704	4,440	1,547	2,979	—
III	1,835	1,878	1,772	—	2,439	1,559	1,547	1,950	1,750
IV	1,592	1,053	1,812	2,446	2,187	—	1,005	—	1,295
V	1,425	1,449	—	1,741	—	2,124	580	—	652
	Clerical	Personal service	Entertain- ment	Protec- tion	Educa- tion	Health	Welfare	Administra- tion and organization	Research and design
Totals:									
I	5,820	—	3,789	—	4,154	6,498	3,090	5,548	6,500
II	5,547	—	5,153	—	—	3,247	2,039	6,244	4,360
III	2,740	2,080	3,088	4,357	—	2,766	—	6,354	—
IV	2,783	1,929	3,019	2,787	—	1,663	—	6,531	—
V	1,633	1,183	999	3,992	—	—	—	2,046	—
Male:									
I	6,160	—	4,671	—	5,595	6,840	3,124	6,072	6,665
II	5,880	—	5,817	—	—	4,329	2,403	6,519	4,416
III	3,487	2,672	3,551	4,379	—	3,659	—	6,693	—
IV	3,416	1,972	3,488	2,828	—	2,486	—	6,768	—
V	1,719	2,117	1,064	3,992	—	—	—	2,500	—
Female:									
I	3,679	—	2,251	—	3,384	3,996	2,969	3,227	3,454
II	3,184	—	3,201	—	—	2,577	1,564	3,349	3,083
III	2,347	1,607	2,438	2,997	—	2,707	—	2,971	—
IV	2,161	1,425	2,411	1,599	—	1,412	—	3,454	—
V	778	882	717	—	—	—	—	1,040	—

Note: All cells marked with a dash are void.

APPENDIX IIB
Median Years of Schooling for the Job Content Matrix, Canada, 1961

Job content level	Tools — Specialized	Tools —Non- specialized	Machines and equipment — Specialized	Machines and equipment — Non- specialized	Inspection	Vehicle operation	Farm	Sales	
								A (Consid- erable knowledge)	B (Little knowledge)
Totals:									
I	12.6	9.6	—	—	—	—	—	11.2	—
II	9.7	9.0	10.4	—	9.1	9.6	8.7	11.8	—
III	8.4	8.2	7.7	8.4	11.2	8.0	8.7	9.2	10.9
IV	7.6	7.3	7.2	7.3	9.0	8.5	7.1	—	10.2
V	6.8	7.2	—	7.8	—	9.2	7.5	—	9.4
Male:									
I	12.6	9.8	—	—	—	—	—	11.3	—
II	9.8	9.0	10.4	—	9.2	9.6	8.7	11.8	—
III	8.4	8.2	7.7	8.4	11.4	7.9	8.7	9.2	10.9
IV	7.5	7.3	7.2	7.3	9.0	8.5	7.1	—	10.7
V	6.6	7.2	—	7.9	—	9.2	7.6	—	9.4
Female:									
I	12.8	8.8	—	—	—	—	—	10.5	—
II	9.0	8.2	10.0	—	8.7	—	9.6	11.6	—
III	8.0	7.8	7.6	—	10.1	9.3	9.6	9.1	10.8
IV	8.0	7.1	7.2	8.1	8.4	—	7.2	—	9.8
V	7.5	7.8	—	7.6	—	9.7	7.3	—	9.4
	Clerical	Personal service	Enter- tainment	Protec- tion	Educa- tion	Health	Welfare	Administra- tion and organization	Research and design
Totals:									
I	13.4	—	12.2	—	15.3	16.7	16.1	16.0	16.3
II	11.3	—	13.1	—	—	13.4	12.2	11.0	12.4
III	11.3	8.4	11.3	10.1	—	12.5	—	10.9	—
IV	11.1	7.4	11.2	7.7	—	10.3	—	10.9	—
V	8.8	7.9	9.3	9.2	—	—	—	7.2	—
Male:									
I	13.3	—	12.0	—	15.8	16.7	16.2	16.2	16.3
II	11.3	—	13.1	—	—	15.5	13.1	11.1	12.4
III	11.2	7.9	10.5	10.1	—	11.4	—	11.0	—
IV	11.1	7.4	10.3	7.6	—	8.9	—	11.0	—
V	8.6	7.8	9.1	9.2	—	—	—	7.2	—
Female:									
I	14.1	—	12.3	—	13.1	16.5	13.4	13.0	13.3
II	11.4	—	13.0	—	—	12.9	11.9	10.5	12.4
III	11.3	8.9	11.9	11.7	—	12.5	—	10.2	—
IV	11.1	7.5	11.8	9.3	—	10.7	—	10.2	—
V	10.0	7.9	9.9	—	—	—	—	7.1	—

Note: All cells marked with a dash are void.